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Dear Sirs

**International Patent Application No PCT/GB03/02870  
entitled Storage of Hazardous Materials  
in the name of British Nuclear Fuels Plc**

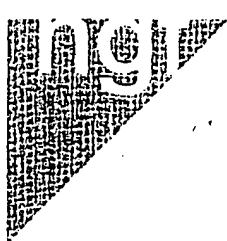
The Examiner is thanked for the Written Opinion dated 24 September 2004 concerning the above application, in response to which the Applicant presents herewith its comments relating to the issues raised by the Examiner, together with an amended set of claims.

In the Written Opinion, the Examiner rejects claims 1, 3, 4, 5, 6 and 13 for lack of novelty over any one of documents D1, D2, D3 and D4, claims 1 and 13 for lack of novelty over documents D5 and D6, and claim 7 for lack of novelty over D4. In addition, the Examiner takes the view that the subject matter of claims 2 and 8-12 is lacking in inventive step.

In order to overcome the novelty objections against claim 1, the Applicant has introduced the subject matter of claim 2 into claim 1, such that the claim now specifies that the nuclear material which is to be treated comprises uranium metal or Magnox fuel elements or fuel element debris. It is hoped that the Examiner will agree that nuclear material in such forms is not disclosed in any of the cited documents D1-D6 and that, accordingly, the novelty objections have been overcome, with claim 1, as amended, now showing novelty over documents D1-D6. New claims 2-11, which are all ultimately dependent on claim 1, are therefore also believed to show novelty over these documents; these claims have been renumbered, and dependencies have been amended, as a consequence of the deletion of old claim 2. Independent claim 12, derived from previous claim 13, has been amended in similar fashion to claim 1, by the introduction of the subject matter of claim 2,

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with the consequence that this claim is now also believed to show novelty over the cited prior art documents.

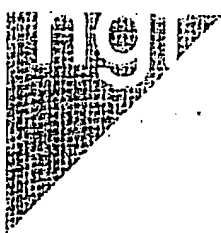
It is also respectfully submitted that the claims, as now amended, demonstrate inventive step over the prior art. Specifically, as noted in the application as filed at page 2, lines 24-30, it has previously been the case that the treatment of nuclear materials of the type specified in claim 1, as now amended, has always been reliant on the use of reprocessing techniques, and there has long been a need for an alternative approach for dealing with these materials. The Applicant has now found that encapsulation in cementitious materials offers a very suitable alternative, providing significant benefits in terms of cost, safety, and environmental considerations.

It is not believed that such a solution to the problem was obvious, however, since much of the prior art, although disclosing the use of cementitious materials as encapsulants, also cautions against their unsuitability. Thus, of the documents cited by the Examiner, it is noted that D1, at page 5, lines 9-23, discusses the cementation process, and concludes that "current cementaceous processes tend to form compositions with high carbonate concentrations which are less stable with prolonged exposure to radiation than silicate compositions". In similar vein, D2 reviews the use of Portland Cement for encapsulation at column 1, line 42-column 2, line 31, and devotes significant attention to the many perceived disadvantages which are associated with this material, including its heavy weight, handling problems, the possibility of leaching out of radioactive materials, and lack of compatibility resulting from the presence of boron in the cement. D3 also takes the view (column 1, lines 31-37) that confinement by treatment in cement is "not very satisfactory when the coated product contains radioactive elements", and suggests that "the leaching rate of such radioactive elements is high". Consequently, on the basis of these three documents, the skilled person would be cautioned against, rather than encouraged to, attempt the encapsulation of uranium metal or Magnox fuel elements or fuel element debris in a cementitious material, as provided by the present invention, and it is not believed that any of these documents, taken either singly or in combination, would point the skilled person towards the present invention.

Of the other documents cited by the Examiner, it is not believed that any would motivate the skilled person to arrive at the present invention. Thus, D4 is concerned only with the disposal of radioactive aromatic liquid wastes generated from the use of liquid scintillation counting, D5 relates to a process for electrolytically removing radioactive ions from decontamination solutions and reducing them to small volumes of metals and ash (column 1, lines 9-10) which may be encapsulated in a cementitious matrix, whilst D6 discloses a method for the disposal of hazardous non-polar organic wastes. It is the opinion of the Applicant that none of these documents would be considered by the skilled person to be of great relevance to the problem of safe and effective disposal of uranium metal or Magnox fuel elements or fuel element debris.

Consequently, the Applicant respectfully submits that the present invention, as defined in claim 1 of the title application, as now amended, shows inventive step over each of the cited prior art documents D1-D6 and any combination thereof, and that the same argument applies to each of claims 2-11, all of which are ultimately dependent on claim 1, and to claim 12. In view of the fact that the claims as amended are also believed to show novelty over the cited art, for the reasons previously discussed, it is believed that all claims are now in an allowable form.

The Applicant naturally wishes to reserve the right to reinstate any subject matter deleted by the presently filed amendments, if necessary by way of future amendment before the National and Regional Patent Offices, or by the filing of divisional applications at that stage. However, in view



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of the amendments which have been submitted herewith, and the above arguments, the Applicant expresses the hope that the Examiner will now be able to issue a favourable International Preliminary Examination Report.

EPO Form 1037 is enclosed herewith and it would be greatly appreciated if a copy of the form could be stamped and returned as proof of the safe receipt of the present correspondence. A confirmatory copy of the correspondence will follow by regular mail.

Yours faithfully

Dr Tony Chalk  
European Patent Attorney

Encs: Amended Claims  
EPO Form 1037 (2)